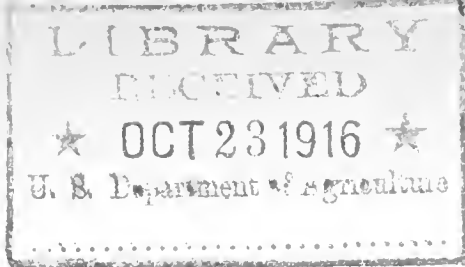


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## COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS.

U. S. DEPARTMENT OF AGRICULTURE  
AND STATE AGRICULTURAL COLLEGES  
COOPERATING.

STATES RELATIONS SERVICE, OFFICE  
OF EXTENSION WORK, NORTH AND  
WEST, WASHINGTON, D. C.

### BOYS' AND GIRLS' CLUB WORK.

#### TINNING, CAPPING, AND SOLDERING CANS; REPAIR WORK FOR THE FARM AND HOME.

##### THE USE OF TIN CANS.

The use of tin cans is regarded as entirely practical for the home canning of surplus fruits and vegetables of the farm. Their use for this purpose is recommended because it simplifies the canning operation. The sealing of a tin can is a comparatively simple matter. It requires only a hand capping iron, a hand tipping copper, a little soldering flux, a small brush, some sal ammoniac, and a little practice. A self-heating hand capping iron which is kept constantly ready for use by means of an attached gasoline torch can now be secured if desired. (See fig. 1.) The use of tin cans for the canning of surplus fruit and vegetables has the further advantage that products so packed are easily handled in transportation and storage.

In the canning of green vegetables, meats, fish, rhubarb, berries, pumpkins, squash, beets, etc., however, the lacquered (enameled) cans should be used because these products may contain substances which dissolve the tin of the ordinary cans, and thus the food may be rendered harmful to health.

##### SIZE OF TIN CANS.

Several standard sizes of tin cans are in common use for canning purposes, as follows:

*Number, size, and diameter of openings of tin cans.*

No. of can.	Size of can.	Diameter of opening.
1.....	2 $\frac{5}{8}$ by 4 inches.....	2 $\frac{1}{8}$ inches.
2.....	3 $\frac{5}{8}$ by 4 $\frac{9}{8}$ inches.....	2 $\frac{1}{8}$ or 2 $\frac{7}{8}$ inches.
3.....	4 $\frac{1}{8}$ by 4 $\frac{7}{8}$ inches.....	2 $\frac{1}{8}$ or 2 $\frac{7}{8}$ inches.
10.....	6 $\frac{3}{8}$ by 6 $\frac{7}{8}$ inches.....	2 $\frac{1}{8}$ or 2 $\frac{7}{8}$ inches.

In buying cans it is always necessary to state whether you desire plain tin or lacquered (enameled) cans. In buying caps always ask for the solder-hemmed caps and give the diameter of the can opening. For whole fruits and vegetables cans with 2 $\frac{7}{8}$ -inch or even larger openings are preferable. Since the size of the can opening varies, and it will not ordinarily be advisable to have more than one capping iron, it is recommended that the larger size (2 $\frac{7}{8}$ -inch) capping iron be purchased.



FIG. 1.—A self-heating capping iron.

### SOLDERING EQUIPMENT.

The soldering equipment required includes a capping iron, a tipping copper, soldering flux, a small brush, a porcelain, glass, or stoneware cup in which to keep the soldering flux, sal ammoniac, a few scraps of zinc, solder, a soft brick, and a file. If a hand-sealing machine and solderless cans are used, all other equipment and material are unnecessary.

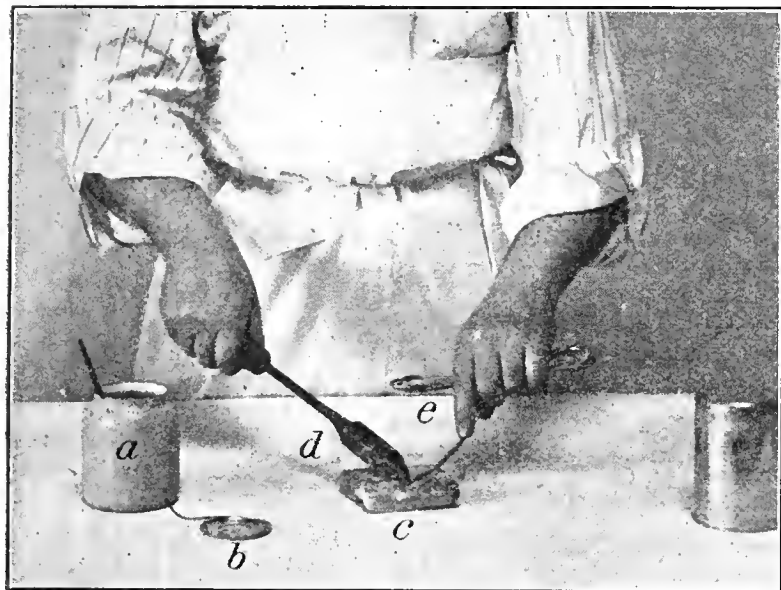


FIG. 2.—Tinning the tipping copper (or soldering iron): *a*, Flux jar and brush; *b*, solder-hemmed cap; *c*, bar sal ammoniac; *d*, tipping copper or soldering iron; *e*, wire solder.

### SOLDERING FLUX.

Soldering flux is a solution of zinc in crude muriatic acid. It is used for cleaning the irons and for brushing the tin and solder surfaces so that the solder will adhere to the tin. It may be made as follows: Place 10 cents' worth of muriatic acid (purchased at the drug store) in a porcelain, stoneware, or glass jar and add as much sheet zinc in small pieces as the acid will dissolve; when the zinc has dissolved dilute the solution with a little water (about half-and-half) and strain through a piece of cloth or muslin. Flux is always best when it has stood at least 12 to 16 hours before being used. Keep the flux well mixed and free from dust and dirt. Care should be taken not to get the flux on clothing.

Soldering flux ready for use may be purchased at drug stores and hardware stores. Sometimes a powdered rosin is used as a substitute for the flux. Recently a soldering paste has been manufactured which is very desirable for use in canning work because it is convenient and clean to handle. It is sometimes called electricians' nonacid flux.

### TINNING THE CAPPING IRON.

Clean the iron with a file or knife; heat it sufficiently to melt a little solder in the sal ammoniac (5 or 10 cents' worth purchased at the drug store); then place the iron in the mixture of sal ammoniac and solder and rotate it until the soldering edge of the iron is thoroughly covered with the solder.

### TINNING THE TIPPING COPPER.

The tipping copper is tinned in very much the same way as the capping iron. Sometimes it is desirable, however, to file the tipping copper sufficiently to make it smooth and to correct the point. The copper should be filed to nearly a sharp point. All particles of smudge, burned materials, etc., should be removed from the iron before tinning. Heat the copper and rotate the tip of it in the mixture of sal ammoniac and solder until it has been covered with the melted solder and is as bright as silver. (See fig. 2.)

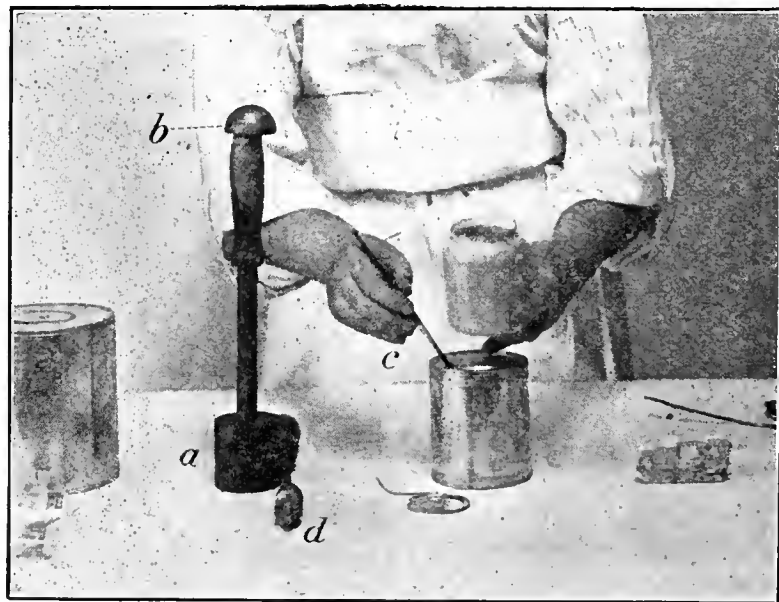


FIG. 3.—Applying the flux, the first step in soldering tin cans: *a*, Capping iron; *b*, head of inner upright steel; *c*, proper position of brush while stroking rim of cap with flux; *d*, tipping copper or soldering iron.

### CAPPING A TIN CAN.

Learn to use one tin can for the training of all members of a canning club. By capping and tipping, heating the cap and throwing it off, and simply adding another cap to the same can, you can use this one can until you have trained all members of the class.

When capping the full packs, arrange the cans in rows upon the table while the capping and tipping irons are in the fire heating. Take a handful of solder-hemmed caps and place the caps on all cans ready to be capped. Place your finger on the venthole, hold the cap in place, and run the brush containing a small amount of flux around the solder-hemmed cap, evenly, with one stroke of the hand. Be careful not to get the flux inside of the can. Do this with all cans ready to be capped. (See fig. 3.) Then take the capping iron from the fire and insert the upright steel in the center. Hold the capping iron above the cap until the center rod touches the cap and holds it in place. (See fig. 4.) Then bring the cap down in contact with all four points of the solder-hemmed cap and rotate back and forth about three strokes. Do not bear down on the capping iron. A forward and backward rotation, if properly applied, will perfectly solder the cap in place. Remove the capping iron and inspect the joint. (See fig. 5.) If any pinholes are found, recap or repair with the tipping copper. It may be necessary to use a piece of wire solder or a waste



FIG. 4.—Position of capping iron and upright steel before lowering and sealing the rim.



FIG. 5.—Method of holding iron and position of hands for rotating the capping iron to strike all points of cap at same time.

leaks in wash boilers, tin pans, milk pails, and other vessels of kitchen, creamery, etc. This will not only save time for the farmer and the housewife, but will oftentimes save considerable expense and worry.

solder rim from a cap to add more solder to the broken places or pinholes of a cap.

### TIPPING A TIN CAN.

With the flux jar and brush conveniently at hand, dip the brush in the flux and strike the venthole a side stroke lightly with the brush saturated with flux. Place the point of the wire solder over the venthole. Place upon this the point of the hot, bright, tipping copper. Press down with a rotary motion and remove quickly. (If a waste solder-hemmed cap rim is available, this may be used instead of the wire solder.)

With a little practice, a smooth perfect joint is easily made.

### USE OF SOLDERING TOOLS FOR REPAIR WORK IN THE HOME.

By the use of the soldering flux, sal ammoniac, and tipping copper (or soldering iron) it is possible, in a few minutes, to solder the

To solder a leak in a tin or galvanized-iron bucket hold the bucket up to the light and locate the leak. Clean the surface to remove grease and dirt. Scrape to remove rust. Brush over the leak hole with soldering flux. Place the point of solder wire over the hole and apply the hot tipping copper. Rotate a trifle and remove. Sometimes it is desirable to do the soldering from the inside, and sometimes from the outside. In case the leak is a large one, the solder should be applied from both sides.

(See fig. 6.)

Other tin or galvanized-iron utensils and household articles may be repaired in a similar way.

If there are boys and girls in the family, it will be interesting to train them to do this repair work. It is a piece of manual-training work that should belong to their system of education. It does not require a trained mechanic or skilled machinist to solder and tip tin cans or to do the average repair work of the farm and the home.

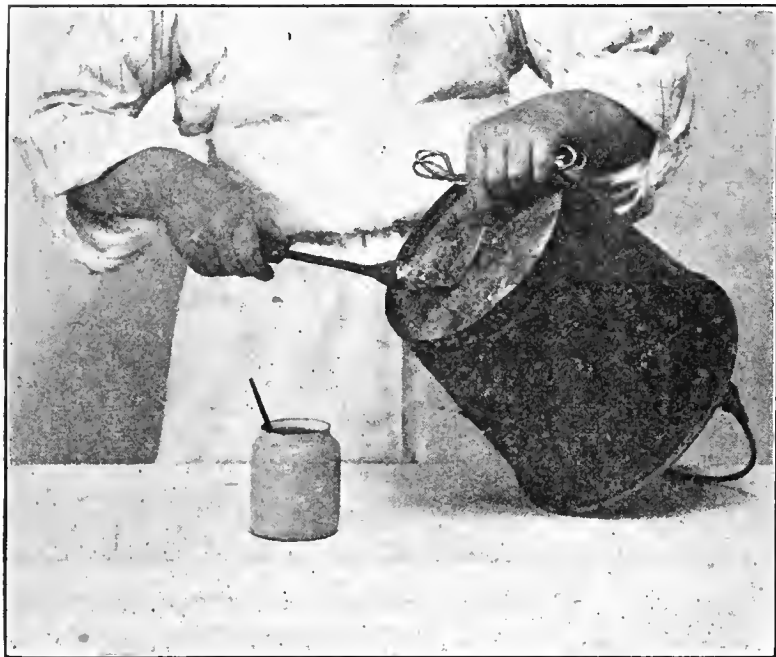


FIG. 6.—Soldering a leak in a water pail. This shows how club members may make use of soldering tools in general repair work about the farm.

#### LEGAL RESTRICTIONS UPON THE SALE OF CANNED PRODUCTS.

If the home-canned products are to be sold, certain legal restrictions which are placed upon the sale of canned goods must be observed. If they are to be sold wholly within

the State, information concerning the State food laws should be obtained by writing to the State board of health. If the products are to be shipped in interstate commerce, information should also be obtained concerning Federal laws and regulations by writing to the Bureau of Chemistry, United States Department of Agriculture, Washington, D. C. Products made and sold wholly within the District of Columbia or the Territories are also subject to the Federal Food and Drugs Act.

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